

Preliminary Classification:

Proposed Class:

Subclass:

NOTE: "All applicants are requested to include a preliminary classification on newly filed patent applications. The preliminary classification, preferably class and subclass designations, should be identified in the upper right-hand corner of the letter of transmittal accompanying the application papers, for example 'Proposed Class 2, subclass 129.'" M.P.E.P. § 601, 7th ed.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Box Patent Application
Assistant Commissioner for Patents
Washington, D.C. 20231

NEW APPLICATION TRANSMITTAL

Transmitted herewith for filing is the patent application of
 Inventor(s): Ari IKONEN, Pekka HEINONEN, Harri OKKONEN

WARNING: 37 C.F.R. § 1.41(a)(1) points out:

"(a) A patent is applied for in the name or names of the actual inventor or inventors.

"(1) The inventorship of a nonprovisional application is that inventorship set forth in the oath or declaration as prescribed by § 1.63, except as provided for in § 1.53(d)(4) and § 1.63(d). If an oath or declaration as prescribed by § 1.63 is not filed during the pendency of a nonprovisional application, the inventorship is that inventorship set forth in the application papers filed pursuant to § 1.53(b), unless a petition under this paragraph accompanied by the fee set forth in § 1.17(i) is filed supplying or changing the name or names of the inventor or inventors."

For (title): A DATA TRANSFER ADAPTOR AND A METHOD FOR TRANSFERRING DATA

CERTIFICATION UNDER 37 C.F.R. § 1.10*

(Express Mail label number is mandatory.)

(Express Mail certification is optional.)

I hereby certify that this New Application Transmittal and the documents referred to as attached therein are being deposited with the United States Postal Service on this date June 6, 2000, in an envelope as "Express Mail Post Office to Addressee," mailing Label Number EL336865449IIS, addressed to the: Assistant Commissioner for Patents, Washington, D.C. 20231.

Elaine Mian

(type or print name of person mailing paper)

Elaine F. Mian

Signature of person mailing paper

WARNING: Certificate of mailing (first class) or facsimile transmission procedures of 37 C.F.R. § 1.8 cannot be used to obtain a date of mailing or transmission for this correspondence.

***WARNING:** Each paper or fee filed by "Express Mail" must have the number of the "Express Mail" mailing label placed thereon prior to mailing. 37 C.F.R. § 1.10(b).

"Since the filing of correspondence under § 1.10 without the Express Mail mailing label thereon is an oversight that can be avoided by the exercise of reasonable care, requests for waiver of this requirement will not be granted on petition." Notice of Oct. 24, 1996, 60 Fed. Reg. 56,439, at 56,442.

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1. Type of Application

This new application is for a(n)

(check one applicable item below)

- ☒ Original (nonprovisional)
☐ Design
☐ Plant

WARNING: Do not use this transmittal for a completion in the U.S. of an International Application under 35 U.S.C. § 371(c)(4), unless the International Application is being filed as a divisional, continuation or continuation-in-part application.

WARNING: Do not use this transmittal for the filing of a provisional application.

NOTE: If one of the following 3 items apply, then complete and attach **ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF A PRIOR U.S. APPLICATION CLAIMED** and a **NOTIFICATION IN PARENT APPLICATION OF THE FILING OF THIS CONTINUATION APPLICATION**.

- ☐ Divisional.
☐ Continuation.
☐ Continuation-in-part (C-I-P).

2. Benefit of Prior U.S. Application(s) (35 U.S.C. §§ 119(e), 120, or 121)

NOTE: A nonprovisional application may claim an invention disclosed in one or more prior filed copending nonprovisional applications or copending international applications designating the United States of America. In order for a nonprovisional application to claim the benefit of a prior filed copending nonprovisional application or copending international application designating the United States of America, each prior application must name as an inventor at least one inventor named in the later filed nonprovisional application and disclose the named inventor's invention claimed in at least one claim of the later filed nonprovisional application in the manner provided by the first paragraph of 35 U.S.C. § 112. Each prior application must also be:

(i) An international application entitled to a filing date in accordance with PCT Article 11 and designating the United States of America; or

(ii) Complete as set forth in § 1.51(b); or

(iii) Entitled to a filing date as set forth in § 1.53(b) or § 1.53(d) and include the basic filing fee set forth in § 1.16; or

(iv) Entitled to a filing date as set forth in § 1.53(b) and have paid therein the processing and retention fee set forth in § 1.21(f) within the time period set forth in § 1.53(f).

37 C.F.R. § 1.78(a)(1).

NOTE: If the new application being transmitted is a divisional, continuation or a continuation-in-part of a parent case, or where the parent case is an International Application which designated the U.S., or benefit of a prior provisional application is claimed, then check the following item and complete and attach **ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED**.

WARNING: If an application claims the benefit of the filing date of an earlier filed application under 35 U.S.C. §§ 120, 121 or 365(c), the 20-year term of that application will be based upon the filing date of the earliest U.S. application that the application makes reference to under 35 U.S.C. §§ 120, 121 or 365(c). (35 U.S.C. § 154(a)(2) does not take into account, for the determination of the patent term, any application on which priority is claimed under 35 U.S.C. §§ 119, 365(a) or 365(b).) For a c-i-p application, applicant should review whether any claim in the patent that will issue is supported by an earlier application and, if not, the applicant should consider canceling the reference to the earlier filed application. The term of a patent is not based on a claim-by-claim approach. See Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,205.

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WARNING: When the last day of pendency of a provisional application falls on a Saturday, Sunday, or Federal holiday within the District of Columbia, any nonprovisional application claiming benefit of the provisional application must be filed prior to the Saturday, Sunday, or Federal holiday within the District of Columbia. See 37 C.F.R. § 1.78(a)(3).

- ☐ The new application being transmitted claims the benefit of prior U.S. application(s). Enclosed are ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

3. Papers Enclosed

- A. Required for filing date under 37 C.F.R. § 1.53(b) (Regular) or 37 C.F.R. § 1.153 (Design) Application

11 Pages of specification

3 Pages of claims

4 Sheets of drawing

WARNING: DO NOT submit original drawings. A high quality copy of the drawings should be supplied when filing a patent application. The drawings that are submitted to the Office must be on strong, white, smooth, and non-shiny paper and meet the standards according to § 1.84. If corrections to the drawings are necessary, they should be made to the original drawing and a high-quality copy of the corrected original drawing then submitted to the Office. Only one copy is required or desired. For comments on proposed then-new 37 C.F.R. § 1.84, see Notice of March 9, 1988 (1990 O.G. 57-62).

NOTE: "Identifying indicia, if provided, should include the application number or the title of the invention, inventor's name, docket number (if any), and the name and telephone number of a person to call if the Office is unable to match the drawings to the proper application. This information should be placed on the back of each sheet of drawing a minimum distance of 1.5 cm. (5/8 inch) down from the top of the page . . ." 37 C.F.R. § 1.84(c)).

(complete the following, if applicable)

- ☐ The enclosed drawing(s) are photograph(s), and there is also attached a "PETITION TO ACCEPT PHOTOGRAPH(S) AS DRAWING(S)." 37 C.F.R. § 1.84(b).
- ☐ formal
- ☐ informal

B. Other Papers Enclosed

 Pages of declaration and power of attorney

1 Pages of abstract

 Other

4. Additional papers enclosed

- ☐ Amendment to claims
- ☐ Cancel in this applications claims _____ before calculating the filing fee. (At least one original independent claim must be retained for filing purposes.)
- ☐ Add the claims shown on the attached amendment. (Claims added have been numbered consecutively following the highest numbered original claims.)
- ☐ Preliminary Amendment
- ☒ Information Disclosure Statement (37 C.F.R. § 1.98)
- ☒ Form PTO-1449 (PTO/SB/08A and 08B)
- ☒ Citations

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- ☐ Declaration of Biological Deposit
- ☐ Submission of "Sequence Listing," computer readable copy and/or amendment pertaining thereto for biotechnology invention containing nucleotide and/or amino acid sequence.
- ☐ Authorization of Attorney(s) to Accept and Follow Instructions from Representative
- ☐ Special Comments
- ☐ Other

5. Declaration or oath (including power of attorney)

NOTE: A newly executed declaration is not required in a continuation or divisional application provided that the prior nonprovisional application contained a declaration as required, the application being filed is by all or fewer than all the inventors named in the prior application, there is no new matter in the application being filed, and a copy of the executed declaration filed in the prior application (showing the signature or an indication thereon that it was signed) is submitted. The copy must be accompanied by a statement requesting deletion of the names of person(s) who are not inventors of the application being filed. If the declaration in the prior application was filed under § 1.47, then a copy of that declaration must be filed accompanied by a copy of the decision granting § 1.47 status or, if a nonsigning person under § 1.47 has subsequently joined in a prior application, then a copy of the subsequently executed declaration must be filed. See 37 C.F.R. §§ 1.63(d)(1)-(3).

NOTE: A declaration filed to complete an application must be executed, identify the specification to which it is directed, identify each inventor by full name including family name and at least one given name, without abbreviation together with any other given name or initial, and the residence, post office address and country or citizenship of each inventor, and state whether the inventor is a sole or joint inventor. 37 C.F.R. § 1.63(a)(1)-(4).

- ☐ Enclosed

Executed by

(check all applicable boxes)

- ☐ inventor(s).
- ☐ legal representative of inventor(s).
37 C.F.R. §§ 1.42 or 1.43.
- ☐ joint inventor or person showing a proprietary interest on behalf of inventor who refused to sign or cannot be reached.
 - ☐ This is the petition required by 37 C.F.R. § 1.47 and the statement required by 37 C.F.R. § 1.47 is also attached. See item 13 below for fee.

- ☒ Not Enclosed.

NOTE: Where the filing is a completion in the U.S. of an International Application or where the completion of the U.S. application contains subject matter in addition to the International Application, the application may be treated as a continuation or continuation-in-part, as the case may be, utilizing ADDED PAGE FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION CLAIMED.

- ☒ Application is made by a person authorized under 37 C.F.R. § 1.41(c) on behalf of all the above named inventor(s).

(The declaration or oath, along with the surcharge required by 37 C.F.R. § 1.16(e) can be filed subsequently).

- ☐ Showing that the filing is authorized.
(not required unless called into question. 37 C.F.R. § 1.41(d))

6. Inventorship Statement

WARNING: If the named inventors are each not the inventors of all the claims an explanation, including the ownership of the various claims at the time the last claimed invention was made, should be submitted.

The inventorship for all the claims in this application are:

☐ The same.

or

☐ Not the same. An explanation, including the ownership of the various claims at the time the last claimed invention was made,

☐ is submitted.

☐ will be submitted.

7. Language

NOTE: An application including a signed oath or declaration may be filed in a language other than English. An English translation of the non-English language application and the processing fee of \$130.00 required by 37 C.F.R. § 1.17(k) is required to be filed with the application, or within such time as may be set by the Office. 37 C.F.R. § 1.52(d).

☒ English

☐ Non-English

☐ The attached translation includes a statement that the translation is accurate. 37 C.F.R. § 1.52(d).

8. Assignment

☒ An assignment of the invention to Nokia Corporation

☐ is attached. A separate ☐ "COVER SHEET FOR ASSIGNMENT (DOCUMENT) ACCOMPANYING NEW PATENT APPLICATION" or ☐ FORM PTO 1595 is also attached.

☒ will follow.

NOTE: "If an assignment is submitted with a new application, send two separate letters-one for the application and one for the assignment." Notice of May 4, 1990 (1114 O.G. 77-78).

WARNING: A newly executed "CERTIFICATE UNDER 37 C.F.R. § 3.73(b)" must be filed when a continuation-in-part application is filed by an assignee. Notice of April 30, 1993, 1150 O.G. 62-64.

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06/06/00

9. Certified Copy

Certified copy(ies) of application(s)

Country	Appln. No.	Filed
Finland	991299	7 June 1999
Country	Appln. No.	Filed
Country	Appln. No.	Filed

from which priority is claimed

☒ is (are) attached.☐ will follow.

NOTE: The foreign application forming the basis for the claim for priority must be referred to in the oath or declaration. 37 C.F.R. § 1.55(a) and 1.63.

NOTE: This item is for any foreign priority for which the application being filed directly relates. If any parent U.S. application or International Application from which this application claims benefit under 35 U.S.C. § 120 is itself entitled to priority from a prior foreign application, then complete item 18 on the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

10. Fee Calculation (37 C.F.R. § 1.16)A. ☒ Regular application

CLAIMS AS FILED					
Number filed		Number Extra	Rate		Basic Fee 37 C.F.R. § 1.16(a) \$ 690.00
Total Claims (37 C.F.R. § 1.16(c))	14 - 20 =	0	×	\$ 18.00	0
Independent Claims (37 C.F.R. § 1.16(b))	3 - 3 =	0	×	\$ 78.00	0
Multiple dependent claim(s), if any (37 C.F.R. § 1.16(d))			+	\$260.00	

☐ Amendment cancelling extra claims is enclosed.☐ Amendment deleting multiple-dependencies is enclosed.☐ Fee for extra claims is not being paid at this time.

NOTE: If the fees for extra claims are not paid on filing they must be paid or the claims cancelled by amendment, prior to the expiration of the time period set for response by the Patent and Trademark Office in any notice of fee deficiency. 37 C.F.R. § 1.16(d).

Filing Fee Calculation

\$ 690.00

B. ☐ Design application
(\$310.00—37 C.F.R. § 1.16(f))

Filing Fee Calculation

\$

C. ☐ Plant application
(\$480.00—37 C.F.R. § 1.16(g))

Filing fee calculation

\$

095999-636660

11. Small Entity Statement(s)

- ☐ Statement(s) that this is a filing by a small entity under 37 C.F.R. § 1.9 and 1.27 is (are) attached.

WARNING: "Status as a small entity must be specifically established in each application or patent in which the status is available and desired. Status as a small entity in one application or patent does not affect any other application or patent, including applications or patents which are directly or indirectly dependent upon the application or patent in which the status has been established. The refiling of an application under § 1.53 as a continuation, division, or continuation-in-part (including a continued prosecution application under § 1.53(d)), or the filing of a reissue application requires a new determination as to continued entitlement to small entity status for the continuing or reissue application. A nonprovisional application claiming benefit under 35 U.S.C. § 119(e), 120, 121, or 365(c) of a prior application, or a reissue application may rely on a statement filed in the prior application or in the patent if the nonprovisional application or the reissue application includes a reference to the statement in the prior application or in the patent or includes a copy of the statement in the prior application or in the patent and status as a small entity is still proper and desired. The payment of the small entity basic statutory filing fee will be treated as such a reference for purposes of this section." 37 C.F.R. § 1.28(a)(2).

WARNING: "Small entity status must not be established when the person or persons signing the . . . statement can unequivocally make the required self-certification." M.P.E.P., § 509.03, 6th ed., rev. 2, July 1996 (emphasis added).

(complete the following, if applicable)

- ☐ Status as a small entity was claimed in prior application _____ / _____, filed on _____, from which benefit is being claimed for this application under:

35 U.S.C. § ☐ 119(e),
☐ 120,
☐ 121,
☐ 365(c),

and which status as a small entity is still proper and desired.

- ☐ A copy of the statement in the prior application is included.

Filing Fee Calculation (50% of A, B or C above)

\$ _____

NOTE: Any excess of the full fee paid will be refunded if small entity status is established and a refund request are filed within 2 months of the date of timely payment of a full fee. The two-month period is not extendable under § 1.136. 37 C.F.R. § 1.28(a).

12. Request for International-Type Search (37 C.F.R. § 1.104(d))

(complete, if applicable)

- ☐ Please prepare an international-type search report for this application at the time when national examination on the merits takes place.

13. Fee Payment Being Made at This Time

☐ Not Enclosed

☐ No filing fee is to be paid at this time.

(This and the surcharge required by 37 C.F.R. § 1.16(e) can be paid subsequently.)

☒ Enclosed

☒ Filing fee \$ 690.00

☐ Recording assignment
(\$40.00; 37 C.F.R. § 1.21(h))
(See attached "COVER SHEET FOR
ASSIGNMENT ACCOMPANYING NEW
APPLICATION".) \$ _____

☐ Petition fee for filing by other than all the
inventors or person on behalf of the inventor
where inventor refused to sign or cannot be
reached
(\$130.00; 37 C.F.R. §§ 1.47 and 1.17(i)) \$ _____

☐ For processing an application with a
specification in
a non-English language
(\$130.00; 37 C.F.R. §§ 1.52(d) and 1.17(k)) \$ _____

☐ Processing and retention fee
(\$130.00; 37 C.F.R. §§ 1.53(d) and 1.21(l)) \$ _____

☐ Fee for international-type search report
(\$40.00; 37 C.F.R. § 1.21(e)) \$ _____

NOTE: 37 C.F.R. § 1.21(f) establishes a fee for processing and retaining any application that is abandoned for failing to complete the application pursuant to 37 C.F.R. § 1.53(f) and this, as well as the changes to 37 C.F.R. §§ 1.53 and 1.78(a)(1), indicate that in order to obtain the benefit of a prior U.S. application, either the basic filing fee must be paid, or the processing and retention fee of § 1.21(f) must be paid, within 1 year from notification under § 53(f).

Total fees enclosed \$ 690.00

14. Method of Payment of Fees

☒ Check in the amount of \$ 690.00

☐ Charge Account No. _____ in the amount of
\$ _____

A duplicate of this transmittal is attached.

NOTE: Fees should be itemized in such a manner that it is clear for which purpose the fees are paid. 37 C.F.R. § 1.22(b).

15. Authorization to Charge Additional Fees

WARNING: If no fees are to be paid on filing, the following items should not be completed.

WARNING: Accurately count claims, especially multiple dependent claims, to avoid unexpected high charges, if extra claim charges are authorized.

- ☒ The Commissioner is hereby authorized to charge the following additional fees by this paper and during the entire pendency of this application to Account No. 16-1350.

☒ 37 C.F.R. § 1.16(a), (f) or (g) (filing fees)

☒ 37 C.F.R. § 1.16(b), (c) and (d) (presentation of extra claims)

NOTE: Because additional fees for excess or multiple dependent claims not paid on filing or on later presentation must only be paid or these claims cancelled by amendment prior to the expiration of the time period set for response by the PTO in any notice of fee deficiency (37 C.F.R. § 1.16(d)), it might be best not to authorize the PTO to charge additional claim fees, except possibly when dealing with amendments after final action.

☒ 37 C.F.R. § 1.16(e) (surcharge for filing the basic filing fee and/or declaration on a date later than the filing date of the application)

☒ 37 C.F.R. § 1.17(a)(1)-(5) (extension fees pursuant to § 1.136(a)).

☐ 37 C.F.R. § 1.17 (application processing fees)

NOTE: ". . . A written request may be submitted in an application that is an authorization to treat any concurrent or future reply, requiring a petition for an extension of time under this paragraph for its timely submission, as incorporating a petition for extension of time for the appropriate length of time. An authorization to charge all required fees, fees under § 1.17, or all required extension of time fees will be treated as a constructive petition for an extension of time in any concurrent or future reply requiring a petition for an extension of time under this paragraph for its timely submission. Submission of the fee set forth in § 1.17(a) will also be treated as a constructive petition for an extension of time in any concurrent reply requiring a petition for an extension of time under this paragraph for its timely submission." 37 C.F.R. § 1.136(a)(3).

☐ 37 C.F.R. § 1.18 (issue fee at or before mailing of Notice of Allowance, pursuant to 37 C.F.R. § 1.311(b))

NOTE: Where an authorization to charge the issue fee to a deposit account has been filed before the mailing of a Notice of Allowance, the issue fee will be automatically charged to the deposit account at the time of mailing the notice of allowance. 37 C.F.R. § 1.311(b).

NOTE: 37 C.F.R. § 1.28(b) requires "Notification of any change in status resulting in loss of entitlement to small entity status must be filed in the application . . . prior to paying, or at the time of paying, . . . the issue fee. . . ." From the wording of 37 C.F.R. § 1.28(b), (a) notification of change of status must be made even if the fee is paid as "other than a small entity" and (b) no notification is required if the change is to another small entity.

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16. Instructions as to Overpayment

NOTE: "... Amounts of twenty-five dollars or less will not be returned unless specifically requested within a reasonable time, nor will the payer be notified of such amounts; amounts over twenty-five dollars may be returned by check or, if requested, by credit to a deposit account." 37 C.F.R. § 1.26(a).

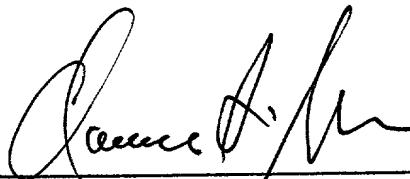
- ☒ Credit Account No. 16-1350
☐ Refund

SEND ALL CORRESPONDENCE TO:

Reg. No. 24,622

Tel. No. (203) 259-1800

Customer No.



SIGNATURE OF PRACTITIONER

Clarence A. Green

(type or print name of attorney)

PERMAN & GREEN, LLP

P.O. Address

425 Post Road, Fairfield, Connecticut 06430

Year	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030																																																													
Population	1,000,000	1,050,000	1,100,000	1,150,000	1,200,000	1,250,000	1,300,000	1,350,000	1,400,000	1,450,000	1,500,000	1,550,000	1,600,000	1,650,000	1,700,000	1,750,000	1,800,000	1,850,000	1,900,000	1,950,000	2,000,000	2,050,000	2,100,000	2,150,000	2,200,000	2,250,000	2,300,000	2,350,000	2,400,000	2,450,000	2,500,000	2,550,000	2,600,000	2,650,000	2,700,000	2,750,000	2,800,000	2,850,000	2,900,000	2,950,000	3,000,000	3,050,000	3,100,000	3,150,000	3,200,000	3,250,000	3,300,000	3,350,000	3,400,000	3,450,000	3,500,000	3,550,000	3,600,000	3,650,000	3,700,000	3,750,000	3,800,000	3,850,000	3,900,000	3,950,000	4,000,000	4,050,000	4,100,000	4,150,000	4,200,000	4,250,000	4,300,000	4,350,000	4,400,000	4,450,000	4,500,000	4,550,000	4,600,000	4,650,000	4,700,000	4,750,000	4,800,000	4,850,000	4,900,000	4,950,000	5,000,000	5,050,000	5,100,000	5,150,000	5,200,000	5,250,000	5,300,000	5,350,000	5,400,000	5,450,000	5,500,000	5,550,000	5,600,000	5,650,000	5,700,000	5,750,000	5,800,000	5,850,000	5,900,000	5,950,000	6,000,000	6,050,000	6,100,000	6,150,000	6,200,000	6,250,000	6,300,000	6,350,000	6,400,000	6,450,000	6,500,000	6,550,000	6,600,000	6,650,000	6,700,000	6,750,000	6,800,000	6,850,000	6,900,000	6,950,000	7,000,000	7,050,000	7,100,000	7,150,000	7,200,000	7,250,000	7,300,000	7,350,000	7,400,000	7,450,000	7,500,000	7,550,000	7,600,000	7,650,000	7,700,000	7,750,000	7,800,000	7,850,000	7,900,000	7,950,000	8,000,000	8,050,000	8,100,000	8,150,000	8,200,000	8,250,000	8,300,000	8,350,000	8,400,000	8,450,000	8,500,000	8,550,000	8,600,000	8,650,000	8,700,000	8,750,000	8,800,000	8,850,000	8,900,000	8,950,000	9,000,000	9,050,000	9,100,000	9,150,000	9,200,000	9,250,000	9,300,000	9,350,000	9,400,000	9,450,000	9,500,000	9,550,000	9,600,000	9,650,000	9,700,000	9,750,000	9,800,000	9,850,000	9,900,000	9,950,000	10,000,000

☒ **Statement Where No Further Pages Added**

- ☐
- Plus "Assignment Cover Letter Accompanying New Application"

Number of pages added _____

☒ This transmittal ends with this page.

A DATA TRANSFER ADAPTOR AND A METHOD FOR TRANSFERRING DATA

FIELD OF THE INVENTION

5

The present invention relates to connecting an external audio-visual device to a second device, especially connecting a TV-device to another device.

BACKGROUND OF THE INVENTION

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When designing a mobile station, one should on one hand minimise the size of the device so that it would be as portable as possible, and on the other hand build a display as large as possible in order to be able to present information on the mobile station as well as possible. There have been plans to use future mobile stations like computers to browse the Internet and even to transmit moving picture. The mobile station's own display unit, small because of demands of portability, is not always the best possible. It is also possible to receive high-quality audio signal, even music, with advanced mobile stations. The small speaker of a mobile station can be somewhat restricted for this purpose, especially if there are several listeners. The ability of a mobile station to store received AV-information is also very restricted. Nonetheless, In some situations it would be preferable to be able to store information received via a mobile station without being restricted to the data storage capacity of the mobile station.

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The patent application publication EP 804012 A2 presents a method, where a mobile station can be used for transferring the identification data of a subscriber of pay-per-view information for their television to the sender of the information. In order to deliver pay-per-view information it is essential to be able to reliably identify the subscriber of the information and a feedback provided by a mobile station offers a cheap means. The mobile station's own PIN-code can be used to identify the subscriber. However, in order to be able to use the method, a connection must be constructed between the mobile station and the television.

Such a connection may require special adaptation of the television devices for them to function with a mobile station. Such an adaptation would cause additional cost and compatibility problems between devices manufactured by different manufacturers. Additionally, a connection to a television by a cable requires a cable to be connected both to the mobile station and the television prior to using the method. In this case the user must leave the mobile station connected to the television at least for a while and the mobile station may easily be forgotten in place when the user leaves the television set. In worst case such a situation may offer a chance of abuse for a third party, if the connection is forgotten open.

SUMMARY OF THE INVENTION

Now an adapter has been invented, by means of which an external device, e.g. a mobile station can be connected to a television device in such a way that the television device can be used as a display of the external device. The invention is preferably realised with a short-range radio connection adapter, such as a LPRF (Low-Power Radio Frequency) adapter, which has been arranged to be able to communicate with an external device via an LPRF-link, and which adapter has been adapted to be connected to a SCART (Syndicat des Constructeurs d'Appareils Radio Récepteurs et Téléviseurs) or antenna connector of the television device. Even more preferably the adapter also comprises a SCART input connector to couple the adapter e.g. between the TV and a VCR in order to allow normal use of the VCR. Alternatively, the adapter can be built according to a second embodiment of the present invention to use instead of or along with SCART connector the antenna connector of the television device, in which case the adapter is coupled between the television device and its antenna cable. Said external device can be e.g. a mobile station, an electronic game, a PDA-device, a portable computer or a video camera.

A TV-device in this context denotes a device capable of receiving a TV-signal, such as a television receiver, a TV-projector (a device to project TV-image on a screen) and a video recorder.

- 5 An advantage of the present invention is that an external device, e.g. a mobile station, can be coupled to a television device using the open LPRF-standard, in which case the coupling can be done easily independently of the make and model of the external device and the television device by using an easily portable adapter, which can quickly be installed by an ordinary consumer. Due to
- 10 the characteristics of radio waves, the coupling is also insusceptible to minor obstacles and will function even if there is no line of sight between the external device and the adapter, e.g. when the adapter is behind the television device. Preferably the adapter has been arranged to use a SCART-connector and the fast blanking -function characteristic thereto, which function enables the adapter,
- 15 when receiving information from an external device, to automatically force the television device to present the information supplied by the adapter. The adapter can also be used to receive information from the television device to an external device. E.g. commercials or other information can be received from text television to the external device. The text television information is already in
- 20 digital form. As an advantage of the LPRF-link such an information transfer connection can easily be arranged for e.g. a mobile station, because when the user is near the television device, his/her personal mobile station is also near the television device. An LPRF-link allows communication between an external device and a television device even if they have not been connected with wires
- 25 and they do not have a direct line of sight or a proper reflection e.g. off a wall. The user can also e.g. keep his/her mobile station on belt attached to a belt clip, in which case the mobile station is in no danger of being left behind when the user leaves the place later.
- 30 Preferably the adapter has also been arranged to comprise a connector to external program source, such as a VCR and/or a video camera, in order to make the adapter transparent to the television device attached to it and to allow

the television device use an external program source normally. In an embodiment of the present invention the adapter has been arranged to also comprise an infrared port to allow e.g. a portable computer or a video camera conforming to the IrDA (Infrared Data Association)-standard to be connected to a television device.

In a second embodiment of the present invention the adapter comprises means for adding or mixing information to a TV-image being presented simultaneously, e.g. similarly to text television's mix function.

In a third embodiment of the present invention the adapter has been integrated to a charging device of an external device (e.g. a mobile station), in which case the user only has to carry with him/her the external device and the charging device in order to be able to use a TV-device as an AV-terminal of the external device.

A coupling device according to the invention for attaching an external device to a television device, which television device has a first input to receive an external information signal in certain first format, is characterised in that the coupling device comprises

short range radio frequency communication means for receiving information from an external device;

means for converting the received information into said information signal in first format; and

a first output for supplying said information signal in the first format to the first input of said television device.

A system according to the invention comprising an external device and a television device,

which external device has means for short range radio frequency communication for sending information; and

which television device has a first input to receive a certain external information signal in a first format, is characterised in that

the system comprises a coupling device for receiving information from the external device to the television device to be presented on the television device,

5 which coupling device comprises:

short range radio frequency communication means for receiving information from the external device;

means for converting received information to an information signal in said first format; and

10 a first output to supply said information signal in the first format to the first input of said television device.

A method according to the present invention for coupling an external device to a television device, which television device has a first input to receive external information signal, is characterised in that

15 a coupling device is attached to the first input in order to receive information;

information sent on a short range radio frequency connection is received on the coupling device;

20 received information is converted to a first format suitable for the television device; and

information in the first format is supplied to the first input of the television device.

25 BRIEF DESCRIPTION OF THE DRAWINGS

The invention is explained in the following in detail by referring to the enclosed drawings and by using a mobile station as an example of an external device, where

30 figure 1 is a diagram of a system according to the invention;

figure 2 is a diagram of data transfer in a system according to the invention;

- figure 3 is a block diagram of the structure of an LPRF-link module according to the invention to be connected to a SCART-connector;
- figure 4 is a block diagram of the structure of an LPRF-link module according to the invention to be connected to an antenna connector;
- 5 figure 5 is a block diagram of the structure of a combined LPRF-link module and mobile station charging device according to a third implementation of the invention.

DETAILED DESCRIPTION

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Figure 1 presents a system according to the invention comprising a mobile station MS, a television receiver TV, a video cassette recorder VCR and an adapter or link module M1. The TV and the VCR of the system are ordinary devices known from prior art. Here a link module M1, which can be used for coupling a mobile station to a television device through an LPRF-link, has been coupled between a TV and a VCR coupled together by means of a SCART connection. The link module comprises a first SCART output SC1 and a first SCART input SC2. The TV comprises a second SCART input SC3 and the VCR comprises a second SCART output SC4. Preferably, but not necessarily, the link module also comprises a flexible extension CL1 to attach detachably to said second SCART input SC3. Alternatively a friction joint can be used to attach the link module by manufacturing the first SCART output to fit snugly to the second SCART input. The link module is coupled to the television receiver through the second SCART input using the first SCART output. The purpose of the first SCART input is to enable the use of an external AV device, such as a video cassette recorder VCR with the TV by sharing SC3 with the VCR. Thus the user does not have to detach the link module and connect the second SCART output of the VCR in the place of the link module in order to be able to view e.g. video image. The link module comprises an antenna ANT1 which enables it to communicate with the mobile station MS. The antenna has been drawn to protrude from the module, but preferably it is integrated inside the module M1. The mobile station is a mobile station, preferably a digital mobile station, such as

a GSM-phone, with LPRF connecting means. The mobile station comprises a display DPL, a keyboard KBD and an antenna ANT2 along with an LPRF-part BB, which comprises an LPRF-antenna ANT3, which the mobile station uses to send information, e.g. text and/or graphics to be presented on the TV's screen, to the link module over an LPRF-link. Preferably the LPRF antenna ANT3 has been integrated inside the mobile station. Instead of a TV the mobile station can be connected e.g. to a TV-projector or a video cassette recorder by means of the link module. Especially in this way it is possible to store several hours of image and/or sound received on a mobile station.

Figure 2 is a diagram of data transfer in a system according to the invention. The system comprises a data transfer network N/W, with which the mobile station MS communicates e.g. through the base stations using the radio link L900, e.g. on the frequency band of about 900 MHz or 1800 MHz. The mobile station communicates with the link module on an LPRF link frequency, which may be e.g. 2400 MHz. The link module M1 in its turn has been coupled to the television through its SCART connector and it transfers information to the TV through the SCART connector.

Figure 3 is a block diagram of a structure of a link module according to the invention to be attached to a SCART connector. The link module comprises a central processing unit CPU, which controls the operation of the link module. The link module comprises a first SCART connector SC1 to supply audio and video information to the television device and preferably, but not necessarily, a second SCART connector SC2 to receive external audio and video information. Naturally, the link module also comprises an LPRF radio block BB2, which in this example is a Bluetooth-standard compliant block for communication with an LPRF connection RFC. The block BB2 is controlled by CPU. The CPU operating instructions i.e. the program has preferably been stored in a Flash-memory F1, where the CPU can read them and which may optionally be used to store configuration data. Optionally the link module may also comprise in connection with the central processing unit an infrared port REMC to receive remote control

or information relayed on IR. To adapt the text and/or graphics received by the link module to an RGB-signal the link module comprises a graphics generator GG, which, using the display memory DR, constructs the information relayed by the processor to RGB format. In order to bypass and re-establish the connection

5 of the received SCART connector the link module comprises a sound switch SS, which is controlled by block AD (Audio Decoder), which functions as a decoder for the audio signal received over the LPRF-link. AD enables the audio data to be decoded as late as in the link module, but alternatively AD can be omitted, in which case MS must transfer the audio signal to the module in an already

10 decoded form. When receiving sound, e.g. speech, from the mobile station over the LPRF link, which sound is desired to be played through the speakers of the television device, the sound switch, controlled by a signal STATC sent by the CPU, disconnects the external audio connector SC2 from SC1 and connects AD in place of SC2 to transmit an audio signal (e.g. speech, music or warning or

15 game sounds produced by the mobile station) to the television device through SC1. Similarly the link module comprises a video switch VS which disconnects the video connection of SC2 from SC1 and connects GG to SC1, when GG issues a disconnecting command to VS. In this case GG gives an RGB-signal to SC1 through the video switch and an RGB synchro signal SYNC to video signal

20 VIDEO1. The sound signal SS relays the sound signal SOUND1 to SC1. If SC2 receives a first status signal STAT1 signalling the entry of an external SCART signal from e.g. a video cassette recorder, VS preferably relays a second status signal STAT2 corresponding to the first status signal STAT1 to SC1, if the TV device is not required to present or store information provided by the mobile

25 station. To replay the image sent by a mobile station connected to a TV device the switch preferably uses a fast blanking signal FB commonly used in SCART connections to force the TV device to display the image. A fast blank signal is an increase of voltage in the pin 8 (status control) of a SCART connector to over 2,5 volts. Preferably the video switch has been arranged to receive a video signal

30 VIDEO2 (e.g. a composite signal) of a tuned channel from the reception circuits of the TV device and to relay syncro information from VIDEO2 to the graphics generator GG. Preferably the link module also comprises a text-TV block TT

connected to VS and CPU. TT receives from VS a VIDEO2 signal and separates digital information from VIDEO2 for the CPU to be relayed over BB2 and RFC to MS.

5 The effect of the fast blank signal is indeed fast and it can be used to mix an RGB-signal into a TV picture e.g. to add a small message "You have a message" to the top edge of the picture. In this case VS gives a sync SYNC to the graphics generator GG and the GG is synchronised to the video of the incoming TV video signal, at which point a video synched RGB is added to the

10 RGB-signal of the TV picture. If the TV video signal is received from e.g. a VCR on SC2, an RGB signal generated by GG and corresponding to the picture to be added to the TV picture is added to the RGB signal supplied by the VCR. Thus when the TV device has been tuned to a channel corresponding to the VCR, VIDEO2 will relay a sync of the video signal of the VCR, VIDEO1, to GG through

15 VS, and GG synchronises an RGB signal generated by GG to be added to the RGB signal received from SC2. Then GG gives a synchronised RGB signal to VS, which combines the RGB generated by GG with the RGB received from SC2 and gives the combined RGB to SC1. The link module preferably also comprises a video camera input VIDC to couple a video camera to the link

20 module. The link module can be arranged to be controlled (e.g. switched on or off) by an external remote control unit using infrared rays or alternatively its control can be realised with an LPRF connection using a mobile station. The link module comprises an internal power source (a battery) or a connector PSC to an external power source in order to receive the energy needed for its operation.

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Figure 4 is a diagram of the structure on an LPRF link module according to the invention to be connected to an antenna connector, which diagram shows the parts relevant to explaining the present invention. The structure of the module is otherwise similar to that of the link module presented in figure 3, but here the

30 pattern coming from the graphics generator is coded to a TV signal with a suitable coding (e.g. PAL, SECAM or NTSC) in block 41. The coded video signal is supplied to an RF modulator to block 42, where an eventual signal SOUND1

from the audio decoder AD is combined with it. Preferably the RF modulator relays as is the antenna signal received in the antenna connection to the television device, but reserves one channel to present information coming from a mobile station at least at those times, when it is receiving a coded video signal.

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Both the link module in figure 3 and the one in figure 4 can be arranged to use e.g. a voltage connection of 3.3 V or 5 V. The power supply of the link module PSC can be arranged e.g. by a battery or mains device attached to the link module.

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Figure 5 presents the structure of a combined LPRF link module and mobile station charging device according to the present invention. The device comprises a link module M1, e.g. the one presented in figure 3, a power supply PS (e.g. a transformer or a voltage converter) and a charging control block CHC.

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The SCART connectors SC1 and SC2 of M1 have preferably been arranged to the ends of flexible cables, so that the device may be placed e.g. on a TV. PS comprises an input ACIN for mains voltage and CHC comprises an output BC1 for a mobile station battery or a mobile station. When the device is coupled e.g.

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between a TV and a video cassette recorder, the device receives its operating voltage from the mains network converted by PS. CHC controls the charging of a mobile station battery attached to the device when needed. Preferably, though not necessarily, the device can be arranged to receive its operating voltage from a mobile station battery connected to the device through BC1, in which case the device can be operated also then, when there are no free mains sockets in the

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vicinity of the TV device. Also preferably, but not necessarily, the device comprises a power saving technology to turn off the unnecessary functions of the link module, until they are activated e.g. on the arrival of an excitation from the mobile station through the LPRF link. Thus the operating period of the device can be extended and an extended functioning period is made possible when the

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device is operated on a battery and not with mains voltage.

This has been a presentation of the implementation and embodiments of the present invention by aid of examples. It is obvious to a man skilled in the art that the present invention is not limited to the details of the embodiments presented above and that the present invention can be realised in another form without deviating from the characteristics of the present invention. The presented embodiments should be considered illuminatory and not restrictive. Thus the implementation and use possibilities of the present invention are indeed restricted only by the enclosed patent claims. E.g. the power saving technology described above can also be applied to the link modules in figures 3 and 4. Correspondingly, instead of LPRF, where the radio signal is 2,4 GHz and the range is about 10 m, a WLAN (Wireless Local Area Network) connection can be used, which connection is another short range radio connection with a range of as much as 100 m. Thus different implementation alternatives defined by the claims, also equivalent implementations belong to the area of the present invention.

CLAIMS

1. A coupling device for attaching an external device to a television device, which television device has a first input to receive a certain external information signal in certain first format, wherein the coupling device comprises
- 5 short range radio communicating means for receiving information from the external device;
- means for converting received information to an information signal in a first format; and
- 10 a first output for supplying said information signal in the first format to the first input of said television device.
2. A coupling device according to claim 1, wherein
- 15 the coupling device comprises a second input for receiving an external picture signal to be relayed to the television device through said first output.
3. A coupling device according to claim 1, wherein
- 20 said first output is a SCART-connector.
4. A coupling device according to claim 1, wherein
- said first output is an antenna cable connector.
5. A coupling device according to claim 2, wherein
- 25 said coupling device comprises switching means to disconnect a signal entering said second input from said first output when the coupling device is communicating with said external device and to connect the signal entering the second input to said first output when the coupling device is not communicating with said external device.
- 30 6. A coupling device according to claim 1, wherein
- said external device is battery operated, and

said coupling device comprises means for charging a battery of said external device.

7. A coupling device according to claim 1, wherein the coupling device comprises

means for receiving a second information from a television program source; and

means to send said second information through a short range radio connection to said external device.

8. A coupling device according to claim 1, wherein said information comprises at least one of the following: picture and sound information.

9. A coupling device according to claim 1, wherein said external device is a mobile station.

10. A coupling device according to claim 1, wherein said short range radio connection is an LPRF link.

11. A coupling device according to claim 1, wherein by coupling said first output to said first input said external device is detachably attachable to a television device.

12. A coupling device according to claim 1, wherein said external device comprises means for attaching said external device detachably to a television device.

13. A system comprising an external device and a television device, which external device has short range radio communicating means for receiving certain external information signal in a first format, wherein

the system comprises a coupling device for receiving information from an external device to a television device to be presented on the television device, which coupling device comprises:

short range radio communicating means for receiving information from an external device;

means for converting the received information to an information signal in said first format; and

a first output to supply said information signal in the first format to the first input of said television device.

14. A method for coupling an external device to a television device, which television device contains a first input to receive an external information signal, wherein

a coupling device is attached to the first input to receive information;

information sent on a short range radio connection is received from an external device;

received information is converted to a first format suitable to the television device; and

information in said first format is supplied to said first input.

ABSTRACT

A coupling device to connect an external device, e.g. a mobile station, to a television receiver through a SCART or antenna connection using an LPRF link (e.g. Bluetooth). The coupling device contains the necessary electronics to receive the signal sent from the mobile station as an LPRF radio signal and convert it to a format suitable for television. The coupling device can be built as a small adapter that attaches directly to the SCART connector of the TV. The coupling device can be arranged to be capable of e.g. relaying a signal from a video recorder to the TV and to replace the signal with a signal presenting the information sent by the mobile station.

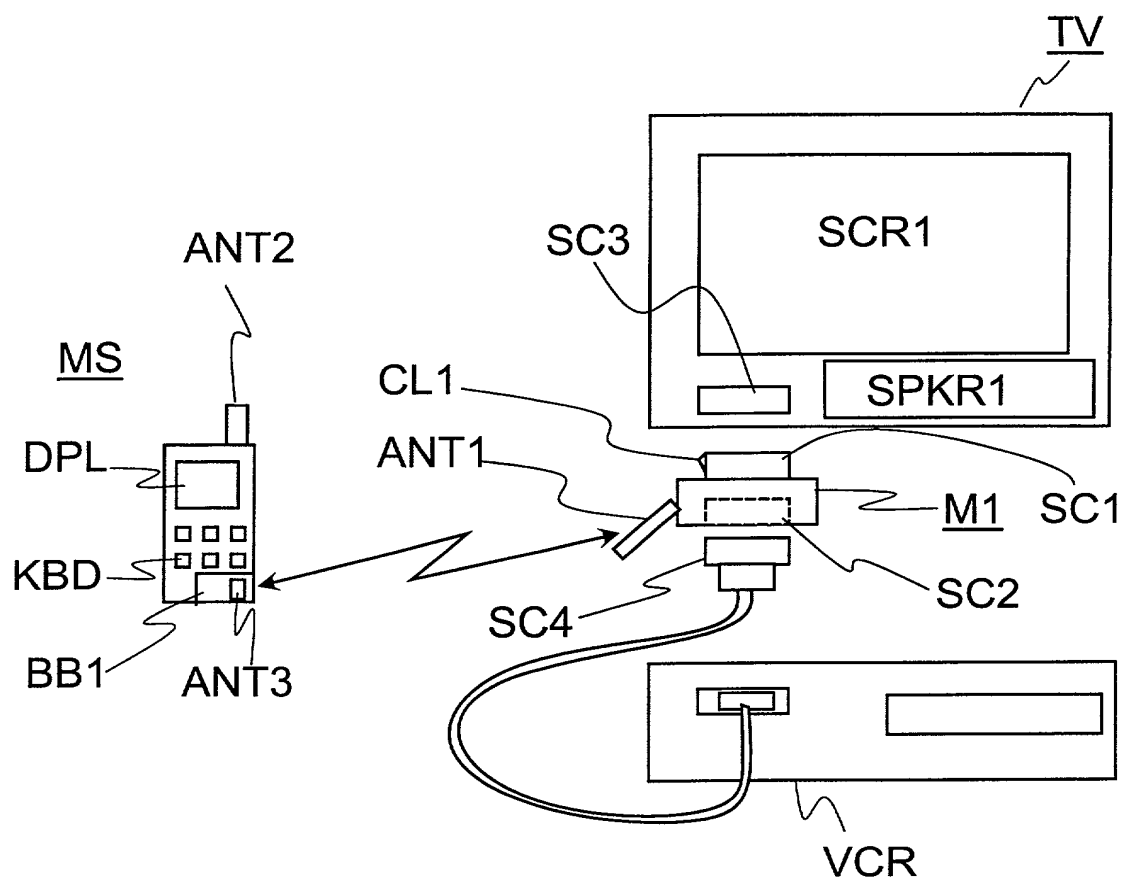


Fig. 1

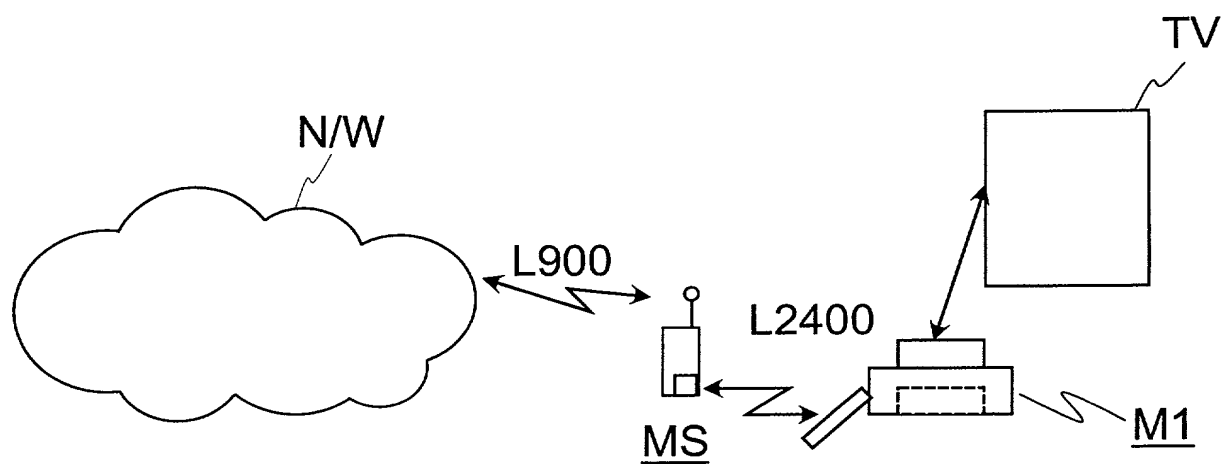


Fig. 2

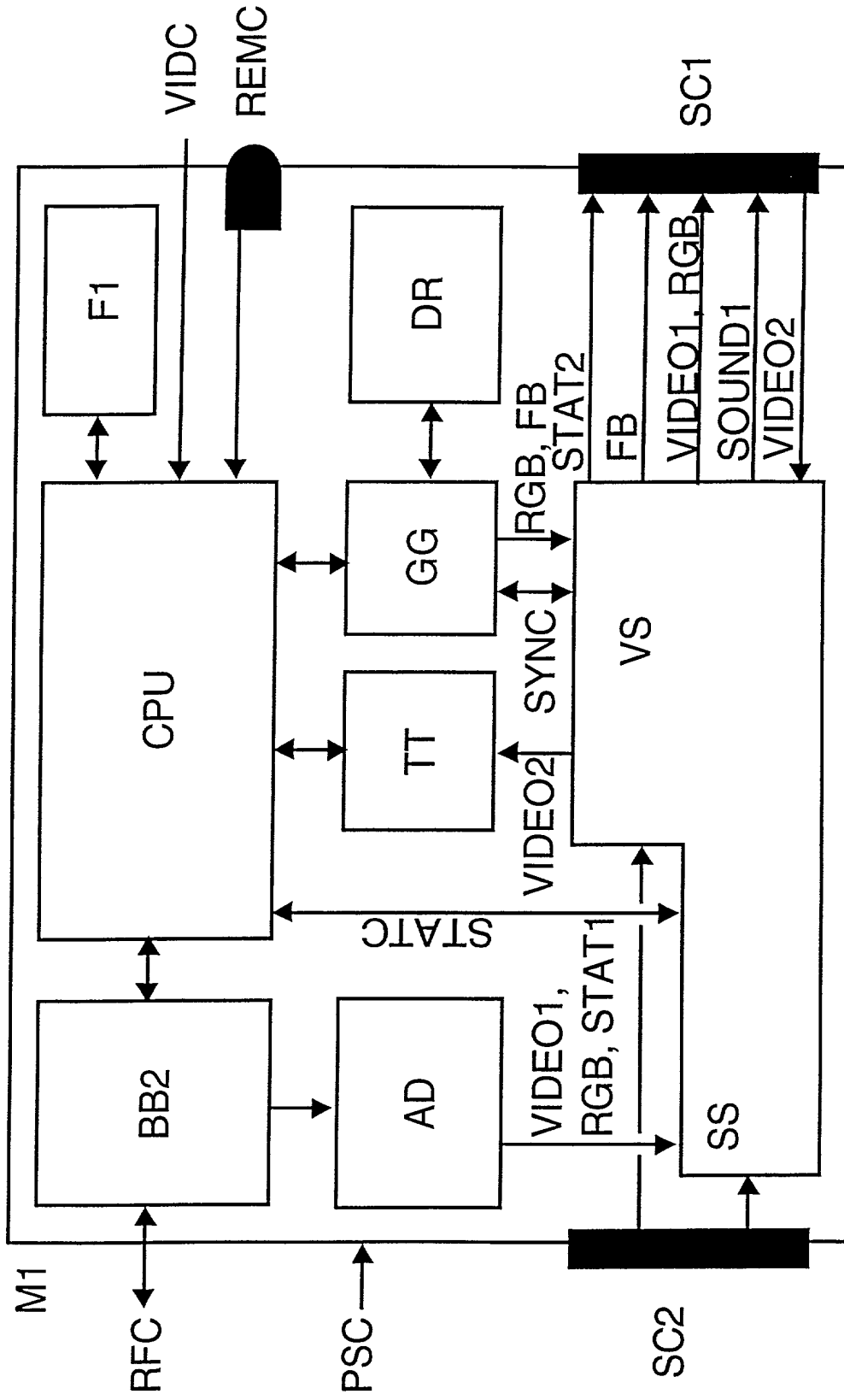


Fig. 3

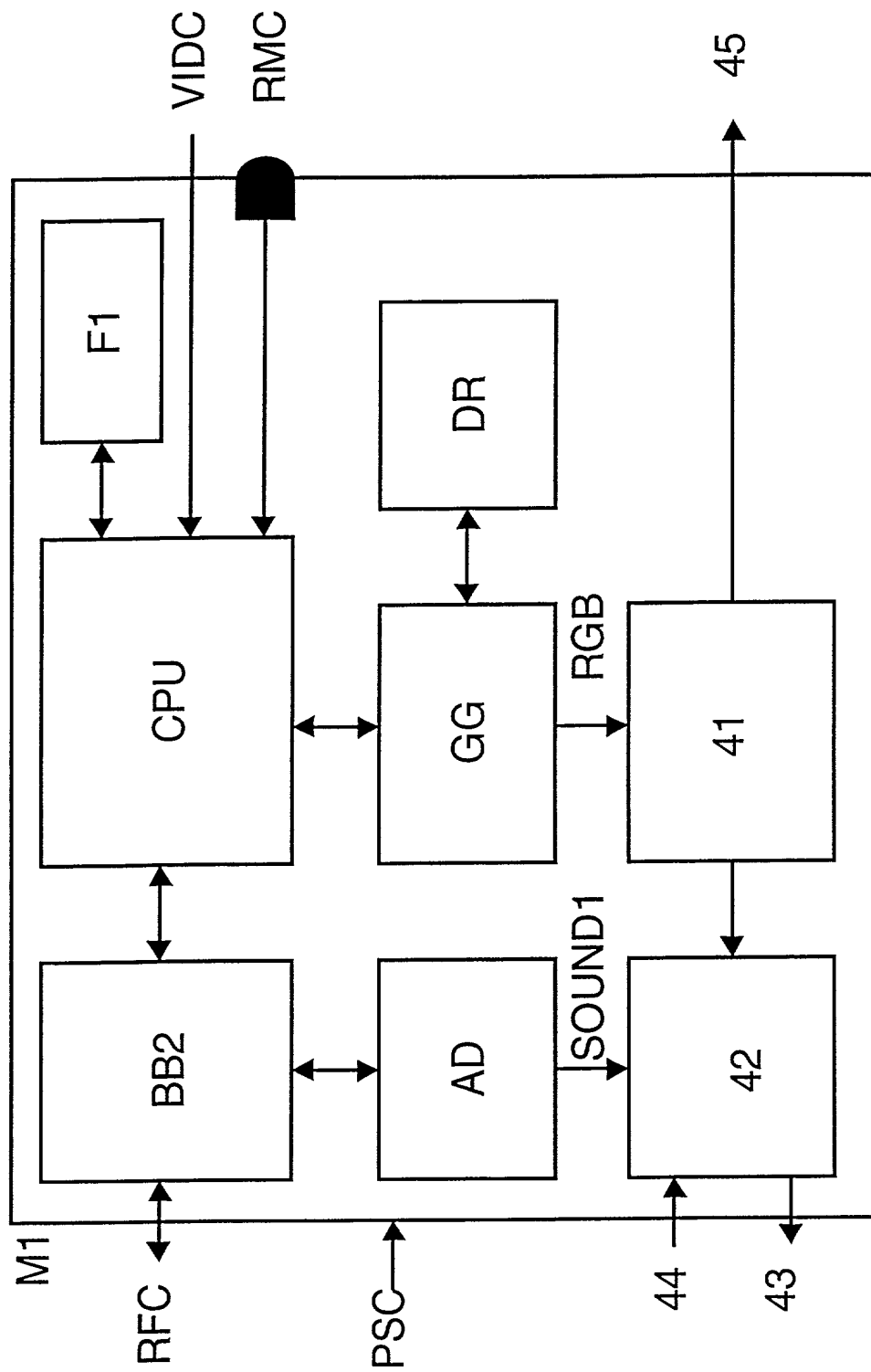


Fig. 4

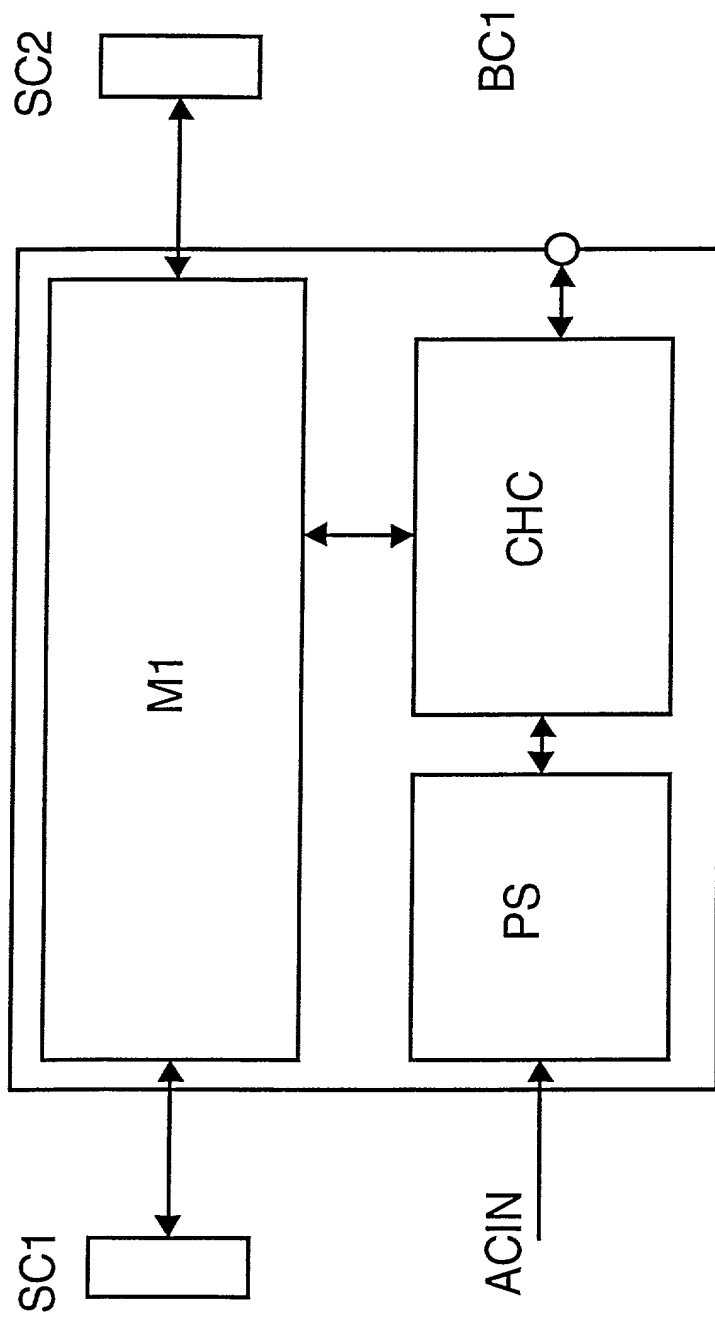
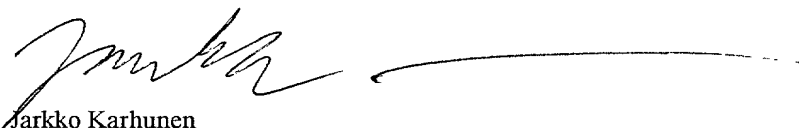


Fig. 5

DECLARATION

I hereby certify that to the best of my knowledge and belief the following is a true translation of the copy of the Finnish patent application No. 991299, filed on 07.06.1999, and the claims therein.

Declared in Kouvola, 19.5.2000

A handwritten signature in black ink, appearing to read 'Jarkko Karhunen', followed by a long horizontal line.

Jarkko Karhunen
JKK-käännöspalvelu

0910299-000000

A data transfer adaptor and a method for transferring data

The present invention relates to connecting an external audio-visual device to a second device, especially connecting a TV-device to another device.

When designing a mobile station, one should on one hand minimise the size of the device so that it would be as portable as possible, and on the other hand build a display as large as possible in order to be able to present information on the mobile station as well as possible. There have been plans to use future mobile stations like computers to browse the Internet and even to transmit moving picture. The mobile station's own display unit, small because of demands of portability, is not always the best possible. It is also possible to receive high-quality audio signal, even music, with advanced mobile stations. The small speaker of a mobile station can be somewhat restricted for this purpose, especially if there are several listeners. The ability of a mobile station to store received AV-information is also very restricted. Nonetheless, In some situations it would be preferable to be able to store information received via a mobile station without being restricted to the data storage capacity of the mobile station.

The patent application publication EP 804012 A2 presents a method, where a mobile station can be used for transferring the identification data of a subscriber of pay-per-view information for their television to the sender of the information. In order to deliver pay-per-view information it is essential to be able to reliably identify the subscriber of the information and a feedback provided by a mobile station offers a cheap means. The mobile station's own PIN-code can be used to identify the subscriber. However, in order to be able to use the method, a connection must be constructed between the mobile station and the television. Such a connection may require special adaptation of the television devices for them to function with a mobile station. Such an adaptation would cause additional cost and compatibility problems between devices manufactured by different manufacturers. Additionally, a connection to a television by a cable requires a cable to be connected both to the mobile station and the television

prior to using the method. In this case the user must leave the mobile station connected to the television at least for a while and the mobile station may easily be forgotten in place when the user leaves the television set. In worst case such a situation may offer a chance of abuse for a third party, if the connection is forgotten open.

Now an adapter has been invented, by means of which an external device, e.g. a mobile station can be connected to a television device in such a way that the television device can be used as a display of the external device. The invention is preferably realised with a short-range radio connection adapter, such as a LPRF (Low-Power Radio Frequency) adapter, which has been arranged to be able to communicate with an external device via an LPRF-link, and which adapter has been adapted to be connected to a SCART (Syndicat des Constructeurs d'Appareils Radio Récepteurs et Téléviseurs) or antenna connector of the television device. Even more preferably the adapter also comprises a SCART input connector to couple the adapter e.g. between the TV and a VCR in order to allow normal use of the VCR. Alternatively, the adapter can be built according to a second embodiment of the present invention to use instead of or along with SCART connector the antenna connector of the television device, in which case the adapter is coupled between the television device and its antenna cable. Said external device can be e.g. a mobile station, an electronic game, a PDA-device, a portable computer or a video camera.

A TV-device in this context denotes a device capable of receiving a TV-signal, such as a television receiver, a TV-projector (a device to project TV-image on a screen) and a video recorder.

An advantage of the present invention is that an external device, e.g. a mobile station, can be coupled to a television device using the open LPRF-standard, in which case the coupling can be done easily independently of the make and model of the external device and the television device by using an easily portable adapter, which can quickly be installed by an ordinary consumer. Due to

the characteristics of radio waves, the coupling is also insusceptible to minor obstacles and will function even if there is no line of sight between the external device and the adapter, e.g. when the adapter is behind the television device. Preferably the adapter has been arranged to use a SCART-connector and the fast blanking -function characteristic thereto, which function enables the adapter, when receiving information from an external device, to automatically force the television device to present the information supplied by the adapter. The adapter can also be used to receive information from the television device to an external device. E.g. commercials or other information can be received from text television to the external device. The text television information is already in digital form. As an advantage of the LPRF-link such an information transfer connection can easily be arranged for e.g. a mobile station, because when the user is near the television device, his/her personal mobile station is also near the television device. An LPRF-link allows communication between an external device and a television device even if they have not been connected with wires and they do not have a direct line of sight or a proper reflection e.g. off a wall. The user can also e.g. keep his/her mobile station on belt attached to a belt clip, in which case the mobile station is in no danger of being left behind when the user leaves the place later.

Preferably the adapter has also been arranged to comprise a connector to external program source, such as a VCR and/or a video camera, in order to make the adapter transparent to the television device attached to it and to allow the television device use an external program source normally. In an embodiment of the present invention the adapter has been arranged to also comprise an infrared port to allow e.g. a portable computer or a video camera conforming to the IrDA (Infrared Data Association)-standard to be connected to a television device.

In a second embodiment of the present invention the adapter comprises means for adding or mixing information to a TV-image being presented simultaneously, e.g. similarly to text television's mix function.

In a third embodiment of the present invention the adapter has been integrated to a charging device of an external device (e.g. a mobile station), in which case the user only has to carry with him/her the external device and the charging device in order to be able to use a TV-device as an AV-terminal of the external device.

A coupling device according to the invention for attaching an external device to a television device, which television device has a first input to receive an external information signal in certain first format, is characterised in that the coupling device comprises

- short range radio frequency communication means for receiving information from an external device;

- means for converting the received information into said information signal in first format; and

- a first output for supplying said information signal in the first format to the first input of said television device.

A system according to the invention comprising an external device and a television device,

- which external device has means for short range radio frequency communication for sending information; and

- which television device has a first input to receive a certain external information signal in a first format, is characterised in that

- the system comprises a coupling device for receiving information from the external device to the television device to be presented on the television device, which coupling device comprises:

- short range radio frequency communication means for receiving information from the external device;

- means for converting received information to an information signal in said first format; and

a first output to supply said information signal in the first format to the first input of said television device.

A method according to the present invention for coupling an external device to a television device, which television device has a first input to receive external information signal, is characterised in that

a coupling device is attached to the first input in order to receive information;

information sent on a short range radio frequency connection is received on the coupling device;

received information is converted to a first format suitable for the television device; and

information in the first format is supplied to the first input of the television device.

The invention is explained in the following in detail by referring to the enclosed drawings and by using a mobile station as an example of an external device, where

- figure 1 is a diagram of a system according to the invention;
- figure 2 is a diagram of data transfer in a system according to the invention;
- figure 3 is a block diagram of the structure of an LPRF-link module according to the invention to be connected to a SCART-connector;
- figure 4 is a block diagram of the structure of an LPRF-link module according to the invention to be connected to an antenna connector;
- figure 5 is a block diagram of the structure of a combined LPRF-link module and mobile station charging device according to a third implementation of the invention.

Figure 1 presents a system according to the invention comprising a mobile station MS, a television receiver TV, a video cassette recorder VCR and an adapter or link module M1. The TV and the VCR of the system are ordinary devices known from prior art. Here a link module M1, which can be used for

coupling a mobile station to a television device through an LPRF-link, has been coupled between a TV and a VCR coupled together by means of a SCART connection. The link module comprises a first SCART output SC1 and a first SCART input SC2. The TV comprises a second SCART input SC3 and the VCR comprises a second SCART output SC4. Preferably, but not necessarily, the link module also comprises a flexible extension CL1 to attach detachably to said second SCART input SC3. Alternatively a friction joint can be used to attach the link module by manufacturing the first SCART output to fit snugly to the second SCART input. The link module is coupled to the television receiver through the second SCART input using the first SCART output. The purpose of the first SCART input is to enable the use of an external AV device, such as a video cassette recorder VCR with the TV by sharing SC3 with the VCR. Thus the user does not have to detach the link module and connect the second SCART output of the VCR in the place of the link module in order to be able to view e.g. video image. The link module comprises an antenna ANT1 which enables it to communicate with the mobile station MS. The antenna has been drawn to protrude from the module, but preferably it is integrated inside the module M1. The mobile station is a mobile station, preferably a digital mobile station, such as a GSM-phone, with LPRF connecting means. The mobile station comprises a display DPL, a keyboard KBD and an antenna ANT2 along with an LPRF-part BB, which comprises an LPRF-antenna ANT3, which the mobile station uses to send information, e.g. text and/or graphics to be presented on the TV's screen, to the link module over an LPRF-link. Preferably the LPRF antenna ANT3 has been integrated inside the mobile station. Instead of a TV the mobile station can be connected e.g. to a TV-projector or a video cassette recorder by means of the link module. Especially in this way it is possible to store several hours of image and/or sound received on a mobile station.

Figure 2 is a diagram of data transfer in a system according to the invention. The system comprises a data transfer network N/W, with which the mobile station MS communicates e.g. through the base stations using the radio link L900, e.g. on the frequency band of about 900 MHz or 1800 MHz. The mobile station

communicates with the link module on an LPRF link frequency, which may be e.g. 2400 MHz. The link module M1 in its turn has been coupled to the television through its SCART connector and it transfers information to the TV through the SCART connector.

Figure 3 is a block diagram of a structure of a link module according to the invention to be attached to a SCART connector. The link module comprises a central processing unit CPU, which controls the operation of the link module. The link module comprises a first SCART connector SC1 to supply audio and video information to the television device and preferably, but not necessarily, a second SCART connector SC2 to receive external audio and video information. Naturally, the link module also comprises an LPRF radio block BB2, which in this example is a Bluetooth-standard compliant block for communication with an LPRF connection RFC. The block BB2 is controlled by CPU. The CPU operating instructions i.e. the program has preferably been stored in a Flash-memory F1, where the CPU can read them and which may optionally be used to store configuration data. Optionally the link module may also comprise in connection with the central processing unit an infrared port REMC to receive remote control or information relayed on IR. To adapt the text and/or graphics received by the link module to an RGB-signal the link module comprises a graphics generator GG, which, using the display memory DR, constructs the information relayed by the processor to RGB format. In order to bypass and re-establish the connection of the received SCART connector the link module comprises a sound switch SS, which is controlled by block AD (Audio Decoder), which functions as a decoder for the audio signal received over the LPRF-link. AD enables the audio data to be decoded as late as in the link module, but alternatively AD can be omitted, in which case MS must transfer the audio signal to the module in an already decoded form. When receiving sound, e.g. speech, from the mobile station over the LPRF link, which sound is desired to be played through the speakers of the television device, the sound switch, controlled by a signal STATC sent by the CPU, disconnects the external audio connector SC2 from SC1 and connects AD in place of SC2 to transmit an audio signal (e.g. speech, music or warning or

The effect of the fast blank signal is indeed fast and it can be used to mix an RGB-signal into a TV picture e.g. to add a small message "You have a message" to the top edge of the picture. In this case VS gives a sync SYNC to the graphics generator GG and the GG is synchronised to the video of the incoming TV video signal, at which point a video synched RGB is added to the RGB-signal of the TV picture. If the TV video signal is received from e.g. a VCR on SC2, an RGB signal generated by GG and corresponding to the picture to be added to the TV picture is added to the RGB signal supplied by the VCR. Thus when the TV device has been tuned to a channel corresponding to the VCR, VIDEO2 will relay a sync of the video signal of the VCR, VIDEO1, to GG through

The SCART connectors SC1 and SC2 of M1 have preferably been arranged to the ends of flexible cables, so that the device may be placed e.g. on a TV. PS comprises an input ACIN for mains voltage and CHC comprises an output BC1 for a mobile station battery or a mobile station. When the device is coupled e.g. between a TV and a video cassette recorder, the device receives its operating voltage from the mains network converted by PS. CHC controls the charging of a mobile station battery attached to the device when needed. Preferably, though not necessarily, the device can be arranged to receive its operating voltage from a mobile station battery connected to the device through BC1, in which case the device can be operated also then, when there are no free mains sockets in the vicinity of the TV device. Also preferably, but not necessarily, the device comprises a power saving technology to turn off the unnecessary functions of the link module, until they are activated e.g. on the arrival of an excitation from the mobile station through the LPRF link. Thus the operating period of the device can be extended and an extended functioning period is made possible when the device is operated on a battery and not with mains voltage.

This has been a presentation of the implementation and embodiments of the present invention by aid of examples. It is obvious to a man skilled in the art that the present invention is not limited to the details of the embodiments presented above and that the present invention can be realised in another form without deviating from the characteristics of the present invention. The presented embodiments should be considered illuminatory and not restrictive. Thus the implementation and use possibilities of the present invention are indeed restricted only by the enclosed patent claims. E.g. the power saving technology described above can also be applied to the link modules in figures 3 and 4. Correspondingly, instead of LPRF, where the radio signal is 2,4 GHz and the range is about 10 m, a WLAN (Wireless Local Area Network) connection can be used, which connection is another short range radio connection with a range of as much as 100 m. Thus different implementation alternatives defined by the claims, also equivalent implementations belong to the area of the present invention.

said coupling device comprises means (PS,CHC) for charging a battery of said external device.

7. A coupling device according to any of claims 1 to 6, **characterised** in that the coupling device comprises
 - means (VIDEO2,VS,TT,CPU) for receiving a second information from a television program source; and
 - means (BB2) to send said second information through a short range radio connection (RFC) to said external device.
8. A coupling device according to any of claims 1 to 7, **characterised** in that said information comprises at least one of the following: picture and sound information.
9. A coupling device according to any of claims 1 to 8, **characterised** in that said external device is a mobile station.
10. A coupling device according to any of claims 1 to 9, **characterised** in that said short range radio connection (RFC) is an LPRF (Low Power Radio Frequency) link.
11. A coupling device according to any of claims 1 to 10, **characterised** in that by coupling said first output to said first input said external device is detachably attachable to a television device.
12. A coupling device according to any of claims 1 to 11, **characterised** in that said external device comprises means (CL1) for attaching said external device detachably to a television device.
13. A system comprising an external device (MS) and a television device (TV),

which external device has short range radio communicating means (BB1) for receiving certain external information signal in a first format, **characterised** in that

the system comprises a coupling device (M1) for receiving information from an external device to a television device to be presented on the television device, which coupling device comprises:

short range radio communicating means (BB2) for receiving information from an external device (MS);

means (AD,CPU,GG,41,42) for converting the received information to an information signal in said first format; and

a first output (SC1) to supply said information signal in the first format to the first input (SC3) of said television device.

14. A method for coupling an external device (MS) to a television device (TV), which television device contains a first input (SC3) to receive an external information signal, **characterised** in that

a coupling device (M1) is attached to the first input to receive information;

information sent on a short range radio connection is received from an external device;

received information is converted to a first format suitable to the television device; and

information in said first format is supplied to said first input.

(57) Abstract

A coupling device to connect an external device, e.g. a mobile station, to a television receiver through a SCART or antenna connection using an LPRF link (e.g. Bluetooth). The coupling device contains the necessary electronics to receive the signal sent from the mobile station as an LPRF radio signal and convert it to a format suitable for television. The coupling device can be built as a small adapter that attaches directly to the SCART connector of the TV. The coupling device can be arranged to be capable of e.g. relaying a signal from a video recorder to the TV and to replace the signal with a signal presenting the information sent by the mobile station.

Fig. 3